LISTING OF THE CLAIMS

A listing of all claims and their current status in accordance with 37 C.F.R. § 1.121(c) is provided below.

1. (previously presented) A method for preparing polyphenylene sulfide polymer, comprising:

reacting an aqueous metal hydroxide with a polar organic compound within a metal vessel comprising iron, chromium and nickel and within a temperature range to form a solution having a reaction product of the metal hydroxide and the polar organic compound;

dehydrating the solution such that at least a portion of the water is removed from the solution without isolating a solid from the solution;

contacting a sulfur source with the solution to form a mixture;

dehydrating the mixture at a temperature greater than 100° C such that at least a portion of the water is removed from the mixture; and

contacting at least a dihaloaromatic compound, with the mixture under polymerization conditions to form polyphenylene sulfide polymers, wherein the corrosiveness of at least one of the solution or the mixture to the metal vessel is such that the polyphenylene sulfide polymers comprise less than 55 ppm iron, less than 15 ppm chromium, or less than 15 ppm nickel, or any combination thereof.

2-34. (cancelled).

35. (previously presented) The method as recited in claim 1, wherein the temperature range is 50° to 200° C to form the solution.

36. (previously presented) The method as recited in claim 1, wherein the temperature range is 75° to 125° C to form the solution.

37. (previously presented) The method as recited in claim 1, wherein the aqueous metal hydroxide comprises sodium hydroxide.

38. (previously presented) The method as recited in claim 1, wherein the polar organic compound comprises N-methyl-2-pyrrolidone.

39. (previously presented) The method as recited in claim 1, wherein the reaction product comprises sodium N-methyl-4-aminobutanoate.

40. (previously presented) The method as recited in claim 1, wherein the sulfur source comprises an alkali metal bisulfide.

41. (previously presented) The method as recited in claim 1, wherein dehydrating the mixture occurs at less than 240° C.

42. (previously presented) A method for polymerizing polyphenylene sulfide, comprising:

reacting an aqueous metal hydroxide with a polar organic compound within a temperature range of 50° to 200° C to form a solution comprising an alkali metal aminoalkanoate without isolating a solid from the solution;

dehydrating the solution to remove at least a portion of the water from the solution;

contacting a sulfur source with the solution to form a mixture;

maintaining the mixture at greater than 100° C, such that at least a portion of the water is removed from the mixture; and

contacting the mixture with at least a dihaloaromatic compound, under polymerization conditions to form polyphenylene sulfide.

43. (previously presented) The method as recited in claim 42, wherein the temperature range is 75° - 125° C.

44. (previously presented) The method as recited in claim 42, wherein maintaining the mixture occurs at less than 240° C.

45. (previously presented) The method as recited in claim 42, wherein the aqueous metal hydroxide comprises sodium hydroxide.

46. (previously presented) The method as recited in claim 42, wherein the polar organic compound comprises N-methyl-2-pyrrolidone.

47. (previously presented) The method as recited in claim 42, wherein the alkali metal aminoalkanoate comprises sodium_N-methyl-4-aminobutanoate.

48. (previously presented) The method as recited in claim 42, wherein the sulfur source comprises an alkali metal bisulfide.

49. (previously presented) The method as recited in claim 42, maintaining the mixture occurs at a pressure range from atmospheric pressure to about 30 p.s.i.g.

50. (previously presented) The method as recited in claim 42, wherein the polyphenylene sulfide comprises less than 55 ppm iron, less than 15 ppm chromium, or less than 15 ppm nickel, or any combination thereof.

51-59. (cancelled).

60. (previously presented) A method for producing polyphenylene sulfide polymers in a metal reactor vessel, comprising:

providing a reactor vessel comprising a metal surface comprising one or more of iron, chromium and nickel suitable for contacting at least a dehydrated solution of an aqueous metal hydroxide and a polar organic compound, a dehydrated mixture of the dehydrated solution and a sulfur source, and polymerization reactants comprising at least one dihaloaromatic compound; and

forming polyphenylene sulfide polymers in the reactor vessel, wherein polyphenylene sulfide polymers prepared in the metal reactor vessel contain less than 55 ppm iron, less than 15 ppm chromium, or less than 15 ppm nickel.

61. (previously presented) A method for polymerizing polyphenylene sulfide, comprising:

placing an aqueous metal hydroxide and a polar organic compound within a metal vessel comprising iron, chromium, and nickel;

heating the aqueous metal hydroxide and the polar organic compound in the vessel to a reaction temperature of less than 200° C for a time interval sufficient to substantially react the metal hydroxide with the polar organic compound to form a solution comprising the polar organic compound, water, and an alkali metal aminoalkanoate;

adding a sulfur source to the vessel to form a mixture of the sulfur source and the solution;

dehydrating the mixture within the vessel at a temperature of less than 240° C such that a portion of water is removed from the vessel; and

contacting at least a dihaloaromatic compound with the mixture in the vessel under polymerization conditions to form polyphenylene sulfide polymers comprising less than 40 ppm iron, less than 7 ppm chromium, or less than 9 ppm nickel, or any combination thereof.

62. (previously presented) The method as recited in claim 61, wherein the aqueous metal hydroxide comprises sodium hydroxide.

63. (previously presented) The method as recited in claim 61, wherein the polar organic compound comprises N-methyl-2-pyrrolidone.

64. (previously presented) The method as recited in claim 61, wherein the vessel containing the aqueous metal hydroxide and the polar organic compound is degassed with nitrogen.

65. (previously presented) The method as recited in claim 61, wherein the reaction temperature is approximately 100° C.

66. (previously presented) The method as recited in claim 61, wherein the time interval is approximately one hour.

67. (previously presented) The method as recited in claim 61, wherein the alkali metal aminoalkanoate comprises sodium N-methyl-4-aminobutanoate.

68. (previously presented) The method as recited in claim 61, wherein lithium halide is not added to the vessel.

69. (previously presented) The method as recited in claim 61, wherein heating comprises heating the aqueous metal hydroxide and the polar organic compound in the vessel to between 50° and 200° C.

70. (previously presented) A method for preparing polyphenylene sulfide polymer, comprising:

reacting an aqueous metal hydroxide with a polar organic compound outside of the presence of a sulfur source within a first temperature range of about 50° to about 200° C to form a solution comprising an alkali metal aminoalkanoate and the polar organic compound;

contacting a sulfur source with the solution to form a mixture;

dehydrating the mixture within a second temperature range of about 100° to about 240° C such that at least a portion of the water is removed from the mixture; and

contacting at least a dihaloaromatic compound with the mixture under polymerization conditions to form polyphenylene sulfide.

71. (previously presented) The method of claim 70, wherein a lithium halide is not added to the sulfur source, to the solution, or to the mixture.

72. (previously presented) The method of claim 70, wherein the polyphenylene sulfide comprises less than 40 ppm iron, less than 7 ppm chromium, or less than 9 ppm nickel, or any combination thereof.